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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/993,522	11/27/2001	Yong Sung Ham	049128-5042	8126

9629 7590 02/08/2005

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EXAMINER	
WU, XIAO MIN	
ART UNIT	**PAPER NUMBER**
2674	

DATE MAILED: 02/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/993,522	HAM, YONG SUNG	
	Examiner	Art Unit	
	XIAO M. WU	2674	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 January 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,7-10,16-18,20 and 21* is/are rejected.

7)☒ Claim(s) *3-6,11-15 and 19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/18/2005 has been entered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 7, 8-10, 16-18, 20 and 21are rejected under 35 U.S.C. 102(b) as being anticipated by Sawada (US Patent No. 6,078,317).

As to claim 1, Sawada discloses a method of driving a liquid crystal display, comprising: setting reference modulated data (13, 16, Fig. 1); detecting a driving frequency of video image data for a current frame (14, 15, 17, Fig. 1); and adjusting the reference modulated data (16, 19, 21, Fig. 1) in accordance with the detected driving frequency to modulate the video image data (e.g. as shown in Figs. 1 and 4, the interpolation processing circuit 16 adjusting the modulated circuit 13 based on the different frequencies such as horizontal frequency and frequency of pixel clock).

As to claims 2, 9, Sawada discloses the reference modulated data are set (e.g. x2, x1.6 or x1.25 interpolation) based on a desired reference frequency.(e.g. 31.5khz, 37.8 kHz and 48.3khz, respectively).

As to claim 7, Sawada discloses that if the input data is equal to the reference modulated data (e.g. 1280x960), no interpolation is needed.

As to claim 8, Sawada discloses a method of driving a liquid crystal display, comprising: setting reference modulated data (13, 16, Fig. 1); dividing a frequency band for each constant frequency band .(e.g. 31.5khz, 37.8 khz and 48.3khz for horizontal frequencies); setting a different weighting value for each frequency band (e.g. x2, x1.6 or x1.25 interpolation); detecting a driving frequency of video image data (15, Fig. 1); determining the frequency band including the detect driving frequency; and assigning a weighting value of the frequency band including the driving frequency to the reference modulated data to adjust the reference modulate data, thereby modulating the video image data (see Fig. 4).

As to claim 10, Sawada discloses a driving apparatus for a liquid crystal display, comprising: a mode detector(15, Fig. 1) detecting a driving frequency of current video image data; and a modulator (16, 17, Fig. 1) selecting reference modulated data from previously registered data (13, Fig. 1) and adjusting the selected reference modulated data in accordance with the detected driving frequency.

As to claims16, 18, Sawada discloses a data driver(22, 23, Fig. 1) applying data outputted from the modulator to a liquid crystal display panel; a gate driver applying a scanning signal to the liquid crystal display panel; and a timing controller (14, 17, 100) applying the current video

image data to the modulator and the mode detector and controlling the data driver and the gate driver.

As to claim 17, Sawada discloses a driving apparatus for a liquid crystal display, comprising: a mode detector (15, Fig. 1) detecting a driving frequency of current video image data; and a modulator (16, 17, Fig. 1) selecting reference modulated data from previously registered data (13, Fig. 1), setting a different weighting value for each frequency band having a plurality of frequency ranges (e.g. x2, x1.6 or x1.25 interpolation), and assigning a weighting value of the frequency band including the detecting frequency to the reference modulated data (see Fig. 4)

As to claim 20, note the discussion of claims 10 and 16 above.

As to claim 21, note the discussion of claims 17 and 18 above.

Allowable Subject Matter

4. Claims 3-6, 11-15 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

5. Applicant's arguments filed 12/7/2004 have been fully considered but they are not persuasive. Applicant argues that Sawada do not detect the driving frequency of the video data. This argument is not persuasive. As shown in Fig. 2, Sawada clearly discloses that LPFs 33 to 35 are low-pass filters having a high-input impedance, each of which filters a frequency signals in corresponding to each of the horizontal frequencies of the respective display such that three

different horizontal frequencies (e.g. 31.5KHz, 37.8 KHz and 48.3KHz) inputted from 31 can be detected, and the reference modulated data in the ADC can be adjusted in accordance with the detected driving horizontal frequency. For example, the modulated data in the ADC can be adjusted by different frequency of dot clock signal as shown in Fig. 4. Applicant also argues that Sawada fails to teach or suggest adjusting the reference modulated data in accordance with the detected driving frequency, or assigning a weight value of the frequency including the driving frequency to the reference modulated data to adjust the reference modulated data. This argument is not persuasive. As shown in Fig. 4, Sawada clearly teaches adjusting the display data by different factors (e.g. 2, 1.6, 1.25) of the interpolation in accordance with different input frequencies (31.5KHz, 37.8KHz, 48.3KHz). It is believed that Sawada still meets the broadly claimed structures.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Xiao Wu whose telephone number is (703) 305-4721.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Patrick Edouard**, can be reached on (703) 308-6725.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9306

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington. VA., Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377

xw
February 3, 2005

XIAO WU
PRIMARY EXAMINER
ART UNIT 2674